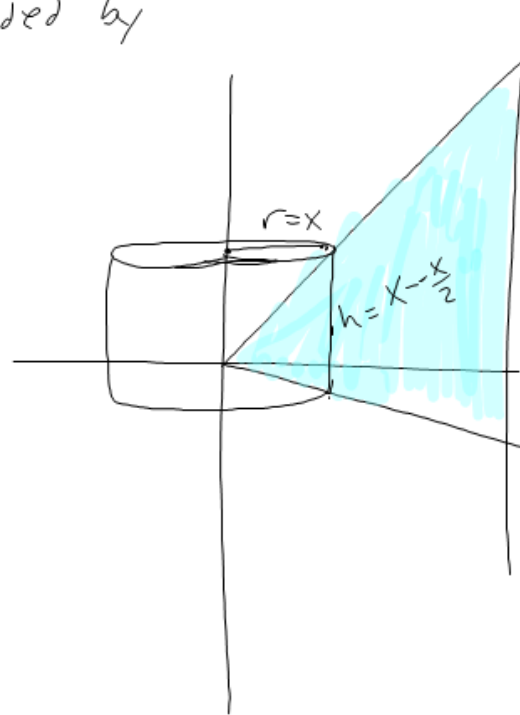


Use the shell method to find the volume of the solid generated by revolving the enclosed region about the y-axis if the enclosed region is bounded by

$$y = x$$

$$y = -\frac{x}{2}$$

$$x = 2$$



$$V_{\text{cyl}} = 2\pi r h \cdot dx$$

$$\int_0^2 2\pi x \left(x - \frac{-\frac{x}{2}}{\frac{x}{2}} \right) dx$$

$$2\pi \int_0^2 \frac{3x^2}{2} dx$$

$$2\pi \cdot \frac{x^3}{3} \Big|_0^2$$

$$\pi x^3$$

$$8\pi - 0 = \boxed{8\pi}$$

Sect. 7,3

#33, 34, 36, 37